

percent of the acid component adds a slight vinegar flavor to the product, so products made with acetic acid alone are best combined with foods containing vinegar.

As noted above, ascorbic acid can be used in the present invention.

- 5 Since ascorbic acid is Vitamin C, the resulting product will have added nutritional content.

Citric and phosphoric acids are also effective for making the products of this invention. Factors considered in deciding which acid to use include cost of the acid, elemental yield of minerals (amount of solids of the acid that end up in the final composition), and time taken and methods available to dry the solution into a powder. For example, formulas that use solely or predominantly phosphoric acid and ascorbic acid as the acid source dry better, and in a reasonable amount of time, with freeze drying than with other drying methods.

15 3. pH

The pH of the reconstituted product (Figure 1, parts 7F and 9A-F) is preferably low enough to inhibit or prevent bacterial growth. Thus, after determining the amount of acid to be added to the mineral(s) to allow solubilization and the mineral/acid reaction to occur in the initial mixing step (Figure 1, steps 3A and 3B), additional acid can be added to result in a lower pH of the reconstituted product, as needed. Alternatively, additional acid can be added just prior to drying (See Figure 1, part 5B). However, the taste of the final product will reflect this addition. For example, citric acid, malic acid and phosphoric acid are commonly introduced to beverages to lower the pH.

25 The pH range for beverages is normally 4.5 to 2.5. preferably 3.75, more preferably about 3.4 or less.

4. Methods of mixing

To mix the minerals in the aqueous solvent (Figure 1, parts 2A-C), it is preferred to blend the components together. However, stirring without blending is acceptable for most formulas. Additionally, it is preferred to add the minerals to the solvent prior to adding the acid(s). It is important that the